**Micro Case 74 – Rubella (German measles)**

**1. Signs and symptoms for the disease it produces.**

* Low grade fever
* Swollen lymph nodes
* **Diffuse maculopapular rash over trunk and extremities**
* Lack of vaccination
* This pt was a 3-year old child

**2. The source of infectious organism.**

Rubella

**3. The manner of exposure, route of infection, tissues that they reside and, where appropriate, transmission to others.**

* Common in countries w/o successful mass immunization programs
* Infection transmitted by **droplet spread** or **direct contact with patients**
* **Congenital rubella syndrome** in fetus if seronegative woman contracts it in early pregnancy

**4. The pathology and the manner by which the particular disease develops and/or is induced, including damage caused by the pathogen and damage caused by the immune system’s response to the pathogen.**

* Rubella virus attaches to respiratory epithelium in nasopharynx
* Spreads hematogenously to regional and distant lymphatics
* Replicates in reticuloendothelial system
* Febrile stage in which virus spreads to other tissues and skin
  + **T cells attack virus-infected vascular endothelial cells** of dermal capillaries leading to skin rash
  + Ag-Ab complex mediated **vasculitis may also contribute to febrile exanthem illness**

**5. Methods of identification and placement into a particular biological subset.**

* Diagnosis possible based on clinical and epidemiological grounds
* Lab confirmation
  + Isolation of virus from throat or urine
  + Virus specific **IgM --->** acute infection
  + Increased **IgG** titer

Rubella virus belongs to the Togavirus family. It is **enveloped** and has a **central icosahedral nucleocapsid core**. Genome is **ssRNA**.

**6. Factors leading to enhanced resistance or susceptibility (e.g., recipients of vaccines, residence in geographic areas, types of work, immunodeficiency, alcoholism, age, violence/abuse, religious beliefs, etc.).**

* Lack of vaccination

**7. Other organisms in the differential diagnosis and how to discriminate among potential causative agents.**

* Disseminated bacterial infections
* Meningococcemia
* Rocky Mountain Spotted Fever
* Scarlet fever (*Strep pyogenes*)
* Typhoid fever (*Salmonella typhi*)
* Viral exanthema illnesses
  + Roseola (HHV-6)
  + Measles
  + Erythema infectiosum (parvovirus B19)
  + Rubella
  + Varicella

Childhood viral infections can be difficult to distinguish from one another. If patient is super ill, a bacterial etiology may be suspected.

**8. Prevention, treatment and vaccine design (live vs. dead).**

* Single dose of live, attenuated rubella virus vaccine, which elicits a mucosal IgA response
* To protect fetus from exposure, maternal immunity should be demonstrated prior to pregnancy